

AMENDMENTS TO THE CLAIMS

1-11 . (Cancelled)

12. (Currently Amended) A fabrication method of VCSEL, implemented to form a contact electrode on a substrate in a resonance cavity, comprising:

subsequently forming a bottom Bragg reflector, a resonance cavity and a top Bragg reflector, wherein the resonance cavity includes a bottom ~~heavily-doped~~ layer and a top ~~heavily~~ doped layer, wherein the bottom ~~heavily-doped~~ layer has a carrier electrical property opposite to that of the top ~~heavily-doped~~ layer;

etching the Bragg reflector, wherein the distance between the etching stop and the top ~~heavily-doped~~ layer is smaller than a dopant diffusion depth of a subsequently formed top high-carrier-concentration ohmic contact channel;

diffusing dopants into an upper electrode predetermined region to form a top high-carrier-concentration ohmic contact channel connecting the top ~~heavily-doped~~ layer, wherein the dopant electrical property of the top high-carrier-concentration ohmic contact channel is opposite to that of the ~~top-bottom~~ ~~heavily-doped~~ layer; and

forming the upper electrode at the predetermined region, wherein the top high-carrier-concentration ohmic contact channel connects to the top ~~heavily-doped~~ layer via the upper electrode; and

forming a bottom high-carrier-concentration ohmic contact channel, via which the lower electrode is connected to the bottom doped layer.

13. (Original) The fabrication method of claim 12, wherein the dopants in the diffusing step are zinc.

14. (Currently Amended) The fabrication method of claim 12, wherein the dopants of the top ~~heavily~~-doped layer are selected from the group consisting of zinc, carbon, beryllium and magnesium.

15. (Canceled)

16. (Currently Amended) The fabrication method of claim 12, wherein the dopants of the ~~heavily~~bottom doped layer are silicon.

17. (Cancelled)